Technical Specifications

Physical & Electrical Characteristics:

Stand-alone map (optional-embedded solution)
Length: 15"
Width: 6.5 "
Height: 7.9"
Low Weight: 22 lbs (including RMU)
Four slots for 6U VME cards
50 milliseconds hold-up time
Power consumption-less than 70 watts
4000 hours - MTBF

Open Architecture

Standard VME64 interface
Power PC processor
VxWorks/integrity real time operating system
Commercial interfaces and form factors
Multi-processor design
DSP

External Interfaces

115 VAC, 3-phase, 400 Hz power
MIL-STD 1553B
ARINC-429
VGA/CCIR/RS-170 video standard
STANAG 3350 C&B
RS-422 serial communication
Discrete I/Os
Fast Ethernet
SCSI-2
RS-232 maintenance channel

Environmental

Operating temperatures: -54C to 71C
Meets MIL-STD 810D
Meets EMI/RFI MIL-STD 461B Part 2
Meets MIL-STD 704A Category B

Mass Memory

Removable Memory Unit (RMU)
Solid State technology
Eight COTS PCMCIA flash cards
10GB mass memory (based on 1.2GB each card)
"Plug and Play" with any standard FLASH Memory PCMCIA card

Excellence based on Experience

Elbit Systems calls on over a decade of experience in moving map systems and a rich array of technologies to tailor DMS configurations for various platforms, including rotary and fixed wing, tilt-rotor and ground vehicles.

Elbit Systems has deep understanding and proven solutions for current and future needs of every platform. Elbit Systems' DMS has been selected for:

- Boeing V-22 tilt-rotor aircraft
- Lockheed F-16 fighter aircraft
- Eurocopter Cougar MK1, MK2
- Swiss rescue helicopter - REGA
- Israeli CH-53 2000 helicopter
- PUMA helicopter
- US Army, Bradley Fighting Vehicle
- US Army, MLRS

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EPMKT-01-001

Digital Map System (DMS)

A new way of looking at the world

ELBIT SYSTEMS' DIGITAL MAP SYSTEM (DMS)

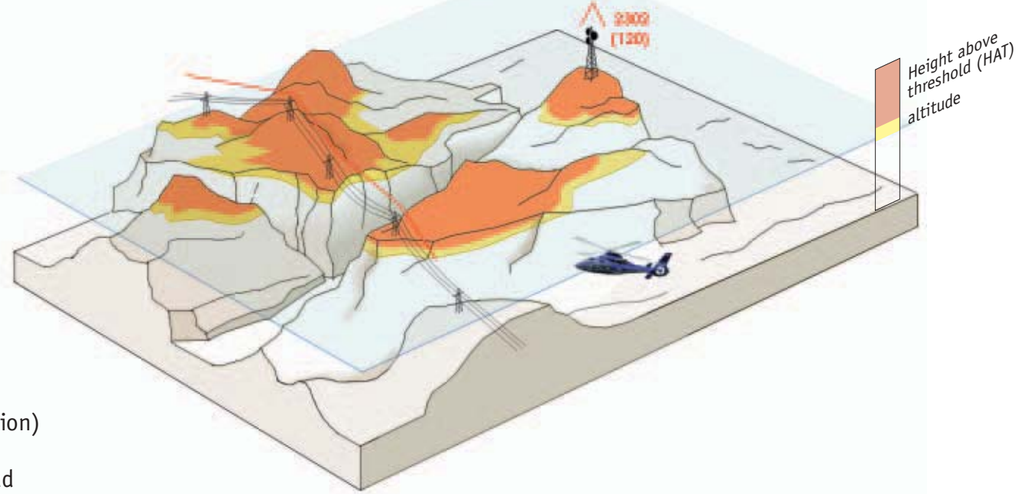
for sharpened performance, safety and situational awareness

The DMS makes the situation perfectly clear

Elbit Systems' **Digital Map System** (DMS) offers the pilot a new way of looking at the world while increasing flight safety and reducing pilot workload. All navigational and mission data, military or civilian, are presented to the crew, clearly, concisely and conveniently. There are no maps to carry to the cockpit (Paperless Cockpit). The DMS' retrievable mass memory stores all mission-critical data in different scales, satellite charts, digital terrain, Jeppesen information, scanned images and tactical data-bases.

Optimized situation awareness and safety

The DMS presents all necessary tactical and navigational information, resulting in the highest level of situational awareness. Waypoints, high ground, obstacles, power lines, threats and other details are indicated in the flight plan. Warnings are issued when power lines or no-fly zones are in the flight path. Overlay control allows the crew to select desired information according to mission needs. The DMS may easily be combined into a Ground Collision Avoidance and Warning Sytem (GCAWS).



Features

- **Flight Qualified / Battle Proven**
- **Two independent map channels**
- **Can be fitted to existing or new displays**
- **Improved safety**
  - Ground
  - Obstacle warning
  - Reduced pilot workload
- **Improved situational awareness**
  - Various display modes and overlays
  - Orientation selection (north/head-up selection)
  - Zoom, scale change
  - Center/de-center selection for far look-ahead
  - Extensive declutter capabilities to reduce image overload
- **Improved battlefield survivability**
  - Threat intervisibility
  - Flight plan conflict alert
  - Aircraft within threat ring alert
  - Line Of Sight (LOS) calculation and display
  - Elevation of selected point

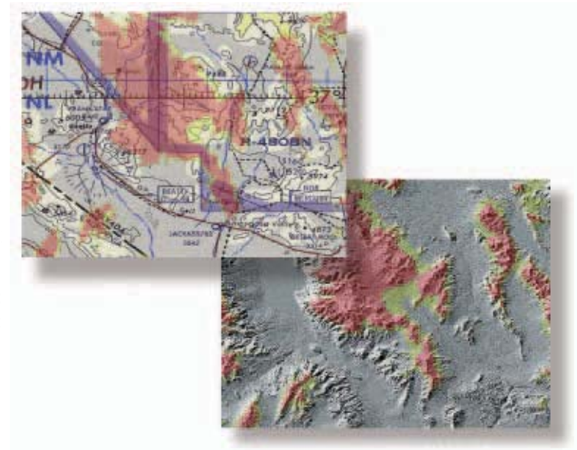
Safety

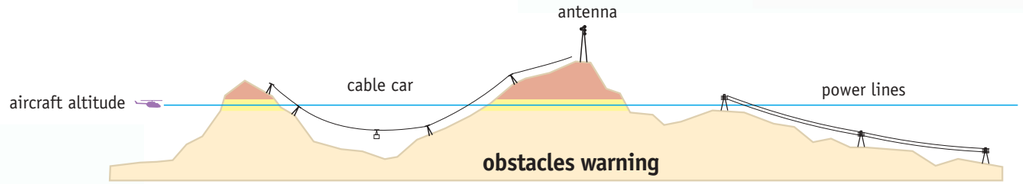
Automatic Obstacle Warning: for towers, power lines and cable cars (based on predefined data base)

Dynamic Height Above Threshold (HAT): translucent-red overlay, displayed on any map type, shows the terrain above the aircraft altitude. This feature has proven to be one of the most important safety features of the system

Pilot workload reduction: introduction of real-time Digital Map to the cockpit significantly reduces the pilot workload due to navigational and situational awareness tasks, thus enhancing safety

Ground Collision Avoidance & Warning System (GCAWS)



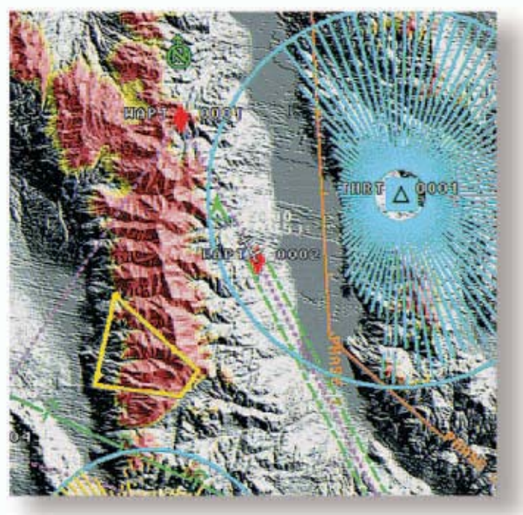


Situational Awareness

Plain display of aircraft in relation to ground and mission in pilot-selected scale and format (north/head-up, waypoints) conveys the most crucial flight data to pilot at a single glance

Battlefield Survivability

- Threat Warning (enemy forces, anti-aircraft weapons and EW sites)
- Real time threat intervisibility calculations
- Combined with data-link and EW system, the DMS displays real-time status of enemy threats as well as friendly forces and support sites



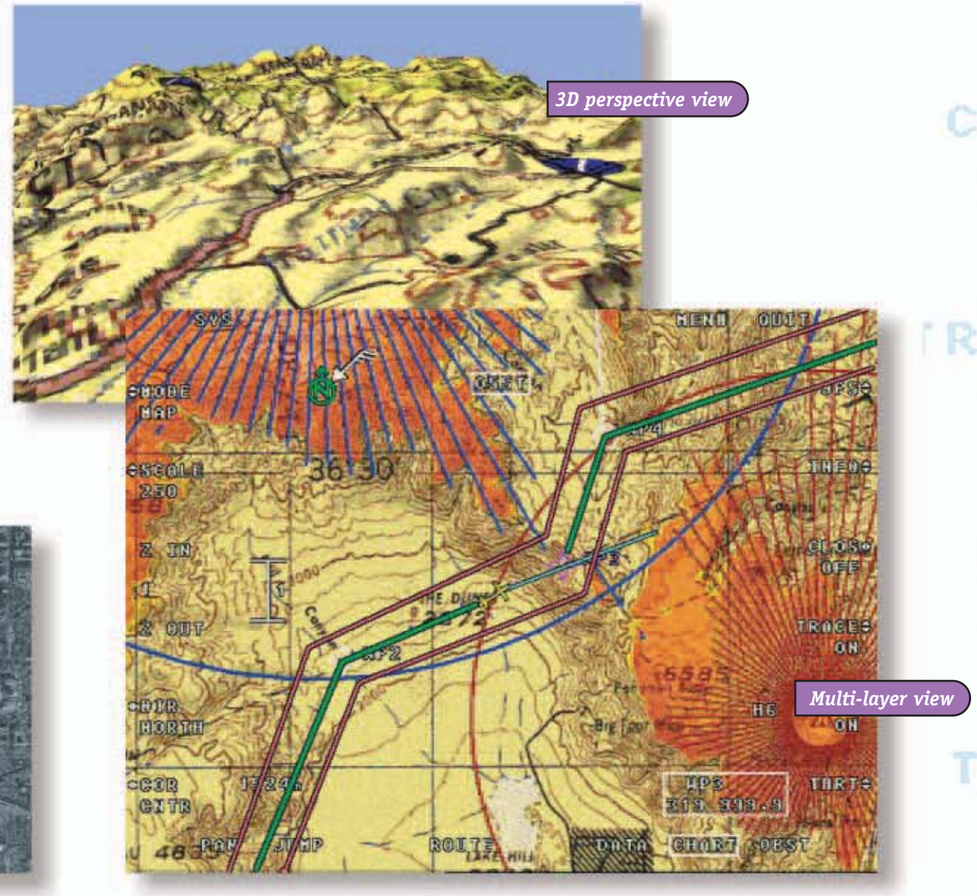
Map Databases

- CADRG (scanned paper maps)
- CIB (satellite imagery)
- RDTED/DTED (terrain elevation data)
- Sun Angle Shading (created in real time from RDTED/DTED)
- Jeppesen (vector databases)
- Data frames (aerial photography, landing patterns, etc.)
- Customer defined types

The DMS supports National Imagery and Mapping Agency (NIMA) databases, as well as customer proprietary databases

Map Modes

- North-up/head-up
- Center/De-center (down to 93%)
- Zoom
- Paper map/CIB view
- RDTED/DTED view
- Data frames
- 3-D (perspective view)



Map Overlays

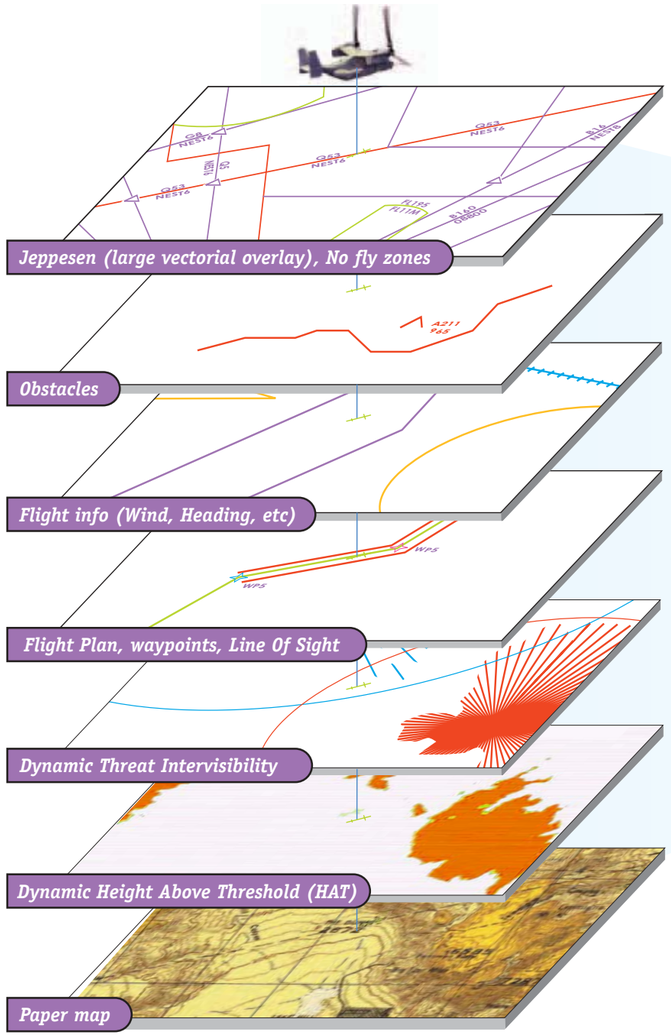
Any combination of overlays is possible

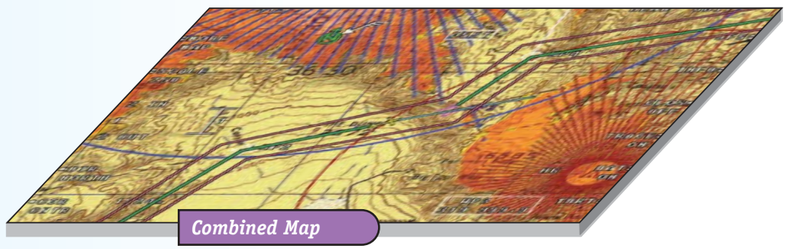
- Jeppesen (large vectorial overlay), No Fly Zone
- Obstacles
- Flight information (Wind, Heading, etc.)
- Flight plan, Waypoints, Line Of Sight
- Dynamic threat intervisibility
- Dynamic Height Above Threshold
- Paper map

Special Map Functions

- Real-time combination of different map types and scales

- **Inflight mission-replanning**
  - Position on a geographical point (Jump)
  - Slew (Pan)
  - Graphical editing of flight plan

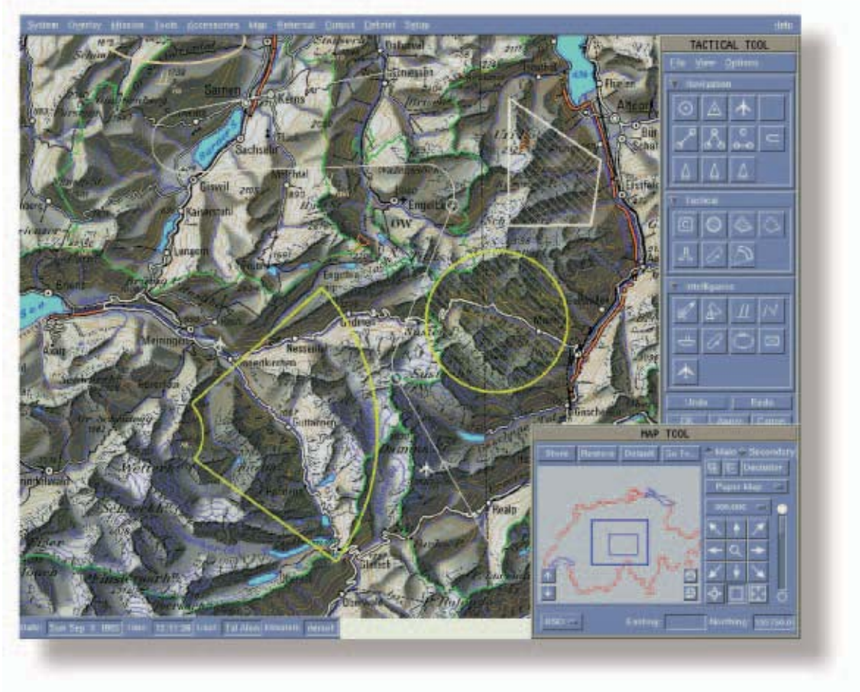




Digital Map Support Systems

Mission Planning Station

The Mission Planning Station is a modular software system used for multiple mission aspects in preparation and pre-flight planning. Elbit Systems Mission Planning Station is a commercial PC-based system designed for squadron level. It is based on a core set of mapping and visualization modules. System architecture enables these core modules to be combined in various configurations and enhanced with new customer-specific modules for a variety of applications.



Map Loading System (MLS)

The MLS is a computerized station, importing and exporting data to the RMU via RMU adapter. Users can prepare an RMU that includes:

- Maps
- Satellite photos
- Charts and data frames
- Terrain information
- Tactical database
- Obstacles
- Jeppesen Data Files from Jeppesen